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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,320	10/31/2003	John Matthew Powers	125061	2547

7590

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EXAMINER

AFZALI, SARANG

ART UNIT

PAPER NUMBER

3729

DATE MAILED: 03/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

6

Office Action Summary	Application No.	Applicant(s)	
	10/699,320	POWERS ET AL.	
	Examiner	Art Unit	
	Sarang Afzali	3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Application filed 10/31/2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-5 and 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>10312003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-5, drawn to a method of repairing a turbine blade for a gas turbine engine, classified in class 29, subclass 889.1.
- II. Claims 6-16, drawn to an apparatus for aligning a gas turbine engine blade, classified in class 29, subclass 464.
- III. Claims 17-20, drawn to a tool for securing a turbine blade, classified in class 29, subclass 559.

1. Inventions of Group I and Group II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used to practice another and materially different process such as one which does not require grinding of the blade based on the zero reference.

2. Inventions of Group I and Group III are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the apparatus as claimed can be used to practice

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another and materially different process such as one which does not require grinding of the blade based on the zero reference.

3. Inventions II and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct if they do not overlap in scope and are not obvious variants, and if it is shown that at least one subcombination is separately usable. In the instant case, subcombination II has separate utility such as using pneumatic cylinder for drive mechanism and providing access to the turbine blade from the slot in the platform and having a push block configured to limit an amount of travel of the slide block. See MPEP § 806.05(d).

4. During a telephone conversation with Robert Reeser on 2-9-2006 an election was made with traverse to prosecute the invention of Group II, claims 6-16. Affirmation of this election must be made by applicant in replying to this office action. Claims 1-5 and 17-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 6-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Brenning (U.S. 3,331,166).

As applied to claim 6, Brenning teaches an apparatus for supporting a turbine blade to be worked on comprising of:

at least one locator pin (spline 18, Fig. 1) configured to engage a serration formed on the blade dovetail (blade A is provided with dovetail 14 having flutes/serrations 15, Fig. 2);

a locator block (support block F, Fig. 1) supporting the locator pin (18, Fig. 1) wherein the locator block comprises of at least one groove sized to receive the locator pin (Note the groove in the block F that supports spline 18, Fig. 1); and

a slide block assembly (clamping arm 32, Fig. 1) for engaging a dovetail surface opposite the serration wherein the slide block assembly is configured to position the blade dovetail against the locator pin.

Note that Fig. (1) shows adjustable stud (33) which is part of slide block assembly (32) slides up and down and engages the dovetail surface (14) at location opposite to the serration (15) in contact with pin (18). Furthermore, slide block assembly (32)

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 6-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wah (U.S. 6,792,655) in view of Arrigoni (U.S. 4,285,108).

As applied to claim 6, Wah teaches an apparatus (lower fixture assembly 44) for supporting a turbine blade to be worked on comprising of:

a locator block (second jaw block 74, Fig. 3) and a slide block assembly (slide block 68 including first jaw block 72, Fig. 3) for engaging a dovetail surface opposite the serration wherein the slide block assembly is configured to position the blade dovetail against the locator pin.

Wah teaches the claimed invention including the structure of the locator block, slide block and both surfaces of the serration and opposite serration of the dovetail (16, Fig. 2) of the blade (12). Wah further teaches that both locator block and slide block have locator means engaging the dovetail and opposite surface of the dovetail. However, Wah does not explicitly teach that the locator mean is in a form of a pin and that locator block comprised of a groove sized to receive the locator pin.

Arrigoni teaches an apparatus for refinishing turbine blade airseals wherein pins (53, Fig. 3) are used as locating means accurately positioning the blade (20) in the fixture (52, Fig. 3, col. 6, lines 6-8). It would have been obvious to one of ordinary skill in the art at the time of invention to have provided Wah with locator pin as taught by Arrigoni to provide an effective means of accurately positioning the blade in the fixture. Note that pin (53) on the right hand-side of Fig. (3) is configured to engage a serration formed on the blade dovetail.

As applied to claim 7, Wah further teaches an apparatus wherein a base member (horizontal plate 34, Fig. 1) has a platform (base plate 60, Fig. 1 & 3) comprising an end plate (combination of first support block 62 and second support block 64, Fig. 3) and an upper surface (top surface of the plate 60) for supporting the slide block assembly (slide block 68 including first jaw block 72, Fig. 3) and the locator block (second jaw block 74, Fig. 3), with the end plate (combination of first support block 62 and second support block 64, Fig. 3) extending from the platform upper surface.

As applied to claim 8, Wah teaches that the platform (top of the base plate 60, Fig. 3) defines a slot (space between the jaws 72 and 74, Fig. 3) for providing access to the turbine blade (12, Fig. 3).

As applied to claim 9, Wah teaches that the slide block assembly (slide block 68 including first jaw block 72, Fig. 3) is movable (moving from left to right along the longitudinal axis of the base plate 60, Fig. 3) between a first position wherein the blade dovetail is removable from the slide block assembly, and a second position; wherein the blade dovetail is secured to the slide block assembly.

As applied to claim 10, Wah teaches that the at least one locator pin further comprises a pair of opposed pins configured to retain the blade dovetail therebetween. Note that Wah teaches the first jaw (72) and second jaw (74) are configured to engage corresponding sides of the blade dovetail and that they are interchangeable (shank 16, Fig. 3, col. 4, lines 31-33 & 36-37). Arrigoni teaches the pin as locator means. Therefore, Wah as modified by Arrigoni teaches "a pair of opposed pins" configured to retain the blade dovetail therebetween.

As applied to claim 11, Wah teaches that slide block assembly (slide block 68 including first jaw block 72, Fig. 3) comprises a push block (first jaw block 72, Fig. 3) for engaging, the dovetail surface opposite the serration with the push block (first jaw block 72, Fig. 3) configured to limit an amount of travel of the slide block. Note that push block (first jaw block 72, Fig. 3) has certain dimensions defined meaning that it could only be deployed toward stationary locator block (second jaw block 74, Fig. 3) up to a certain limit and therefore it is configured to limit an amount of the travel of the slide block (slide block 68 including first jaw block 72, Fig. 3).

As applied to claims 12 and 13, Wah teaches that a drive mechanism (70, Fig. 3) is a pneumatic cylinder (col. 4, lines 25-27) coupled to the end plate (first support block 62, Fig. 3) and the slide block (slide block 68 including first jaw block 72) for positioning the slide block.

As applied to claims 14, Wah teaches a gauge plate (output adapter 96, Fig. 4) coupled to the locator block (by means of plate 60, col. 4, lines 66-67, col. 5, lines 1-2) for positioning the turbine blade (12) relative to the apparatus with the gauge plate comprising a gauge set block (trust plate 92 part of assembly 90 which is connected to output adapter 96) for providing a zero reference point.

As applied to claims 15, Wah teaches a locator pin comprises a first end, second end, and a clamping section extending therebetween with the clamping section having a length that is substantially equal to a length of the blade dovetail. Note that the clamping sections of jaws (72 & 74) have length larger than the length of the blade dovetail (Fig. 3). However, these jaws (72 & 74) are interchangeable and can be replaced with

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different sets of jaws to accommodate different types of blades as needed such as ones that are substantially equal to the length of the blade dovetail that is being worked on (col. 4, lines 36-41).

As applied to claims 16, Wah teaches a locator plate (top plates of jaws 72 & 74, Fig. 3) serve as stops for positioning the blade dovetail in the apparatus. Note that the jaws (72 & 74) are clamped together to hold the dovetail (16) of the blade (12) and therefore their top surfaces prevent the blade (12) to have any further movements in any directions.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. White (U.S. 2002/0052168) teaches a fixture (Fig. 2) for clamping a workpiece (rotor) between two oversized positioning rolls (84 & 85) located in rotor lobe valleys on opposite sides of the rotor.

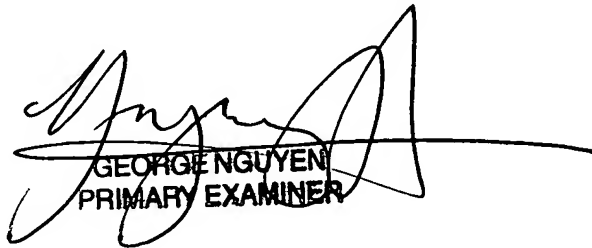
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sarang Afzali whose telephone number is 571-272-8412. The examiner can normally be reached on 7:00-3:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S.A.
03/23/2006



GEORGE NGUYEN
PRIMARY EXAMINER